



Published in final edited form as:

J Health Care Poor Underserved. 2025 ; 36(1): 82–95. doi:10.1353/hpu.2025.a951587.

Adolescent Sexual Behavior, Contraceptive Use, and STI Testing during the COVID-19 Pandemic (January–June 2021)

Laima Licitis, MPH [ORISE Fellow],

Oak Ridge Institute for Science and Education, Oak Ridge, TN

Leigh E. Szucs, PhD, CHES [Senior Health Scientist],

Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA

Zach Oberholtzer, MPH [ORISE Fellow],

Oak Ridge Institute for Science and Education, Oak Ridge, TN

Kathleen H. Krause, PhD, MSc [Epidemiologist],

Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA

Jennifer Smith, MSPH, CPH,

Epidemiologist, Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA, and Lieutenant Commander, United States Public Health Service Commissioned Corps, Rockville, Maryland

Emily Young, MPH, MEd [Health Scientist],

Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA

Ari Fodeman, PhD [Health Scientist],

Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA

Sanjana Pampati, PhD [Health Scientist]

Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, GA

Abstract

Background. The COVID-19 pandemic affected adolescents' sexual and reproductive health (SRH) behaviors and access to services.

Methods. We analyzed data from the 2021 Adolescent Behaviors and Experiences Survey (n=7,705) on sexual activity, condom and contraceptive use, and sexually transmitted infection (STI) testing. We tested differences in SRH outcomes by demographics, racism experience, and English proficiency.

Results. Current sexual activity was higher among students reporting ever experiencing racism at school and self-rating how well they can speak English as “not well.” Condom use differed by sex, sexual identity, and sex of sexual contacts. Demographic differences in contraceptive use were also identified. Sexually active females (vs. males) and males with same-sex or both-sex contacts (vs. opposite-sex) had higher STI testing.

Conclusion. Differences by students’ demographic characteristics and experiences during the pandemic highlight needs to enhance accessibility and quality of adolescent SRH services and education in schools, clinics, and communities.

Keywords

Sexual health; reproductive health; STI testing; contraception; condom use; COVID-19 pandemic; adolescents; youth; health services

During the height of the COVID-19 pandemic, U.S. adolescents experienced major disruptions to their lives and well-being.^{1–3} Previous research has explored the pandemic’s impact on adolescent sexual behavior and receipt of health services, including services for sexual and reproductive health (SRH).⁴ One study reported that school-based health center (SBHC) use stayed consistent to pre-pandemic numbers and health-care visits for sexually transmitted infections (STIs) did not significantly change for SBHCs that remained open during COVID-19.⁵ However, only 12% of SBHCs remained open during Spring 2020,⁶ meaning that while students would use SBHCs if open, it is likely those services were not accessible. In 2021, approximately 20% of adolescents had not received needed medical care over a six-month period,⁷ and another study reported decreases in HIV testing.⁸ While some studies documented reductions in adolescents’ physical sexual activities during this time,^{9,10} possibly due to limited privacy from parents as youth spent more time at home,^{9,11} others found those decreases were not evident for all adolescent demographic groups.^{8,12} Additional research is needed to understand demographic differences in adolescent sexual activity and SRH health care use during the pandemic.

Pandemic-related disruptions to SRH have exacerbated pre-pandemic SRH disparities by race and ethnicity.¹³ Racism, homophobia, stigma, and discrimination can have negative impacts on adolescent health, including mental health and SRH outcomes.^{14–16} Language barriers, such as low English proficiency and comprehension, can also contribute to differences in youth health care access¹⁷ and have previously been established as a proxy for discrimination experiences (e.g., discrimination based on accent).¹⁸ Accordingly, this study assessed adolescents’ SRH behaviors during the pandemic and explored associations with demographics, experiences of racism in school, and English proficiency, serving as potential markers of discrimination experiences.

Methods

Participants.

We analyzed data from the Adolescent Behaviors and Experiences Survey (ABES), an online survey conducted from January through June 2021, to examine student experiences during the COVID-19 pandemic. A stratified, three-stage cluster probability-based sample

was taken to obtain a nationally representative sample of high school students in public and private schools. The total response rate for the survey was 18.1%, with a 37.8% school response rate ($n = 128/339$) and a 48.0% student response rate ($n = 7,705/16,037$).¹⁹ For more information on ABES methodology see Rico et al.¹⁹

Measures.

Sexual and reproductive health behaviors of interest were current sexual activity (i.e., any sexual partners within three months prior to survey), use of condoms during last sex, and receipt of STI testing (past 12 months). Among currently sexually active students who were ever sexually active with someone of the opposite sex, primary contraceptive method used to prevent pregnancy at last sex was assessed. Participants could select one of the following contraceptive methods: intrauterine device (IUD) or implant; shot, patch, or ring or birth control pills (BCP); condom; withdrawal or some other method; and no method used. Two separate questions were used to assess condom use, one question explicitly focuses on condom use for pregnancy prevention at last sex and the other question focuses on any condom use (no specified purpose) at last sex. Two dichotomized independent variables examined were experiences of racism in school (ever versus never) and self-rated English proficiency (“speaks English well” versus “does not speak English well”). Demographics included sex (male, female), age (≤ 15 , 16, 17, ≥ 18 years old), race and ethnicity (Non-Hispanic White; Non-Hispanic Black; Hispanic/Latino; and Non-Hispanic American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, or Non-Hispanic Multiracial), sexual identity (heterosexual; lesbian, gay, or bisexual [LGB]; I describe my sexual identity some other way or I am not sure about my sexual identity [other or questioning]), and sex of sexual contacts (same sex or both sexes, opposite sex only). For complete details about measures, including survey wording and operationalization, see Appendix, available from authors on request.

Procedures.

Prevalence of SRH behaviors is presented overall and stratified by demographic characteristics, experiences of racism in school, and English proficiency. Current sexual activity was assessed among all students ($n=7,705$), but the analytic sample for all other behaviors was restricted to those currently sexually active ($n=1,415$). When examining primary contraceptive method used at last sex with an opposite-sex partner, the analytic sample was further restricted to only those ever reporting an opposite-sex partner ($n=1,296$). Given differing STI screening recommendations by sex,^{20, 21} we present overall and sex-stratified prevalence for STI testing in the past year. Chi-squared tests examined differences by demographics, experiences of racism in school, and English proficiency. Prevalence estimates based on a denominator of less than 30 were suppressed. Findings with a p -value $< .05$ were considered statistically significant. All analyses were conducted in R (version 4.2.1) using the “survey” package.²²

Results

Overall, 18.8% of students were currently sexually active (Table 1), 54.0% of whom reported condom use at last sex. Among currently sexually active students who ever had

sex with an opposite-sex partner, 40.8% used condoms; 27.8% used a shot, patch, or ring or BCP; 13.4% used no method; 9.3% used withdrawal or some other method; and 5.8% used an IUD or implant at last sex with a member of the opposite sex to prevent pregnancy. Current sexual activity differed significantly by age, race and ethnicity, sexual identity, sex of sexual contact, experiences of racism at school, and English proficiency. It was lowest among Hispanic students (14.7%) and highest among Non-Hispanic White (20.9%) students. Prevalence of current sexual activity was higher in students who reported opposite-sex only sexual contacts (48.2%) than those who reported same-sex or both-sex sexual contacts (34.1%), higher among students who experienced racism at school than those who did not (21.5% versus 17.3%), and higher among students who reported they did not speak English well than those who reported speaking English well (31.8% versus 18.3%).

Condom use and primary contraceptive method used to prevent pregnancy.

Males were more likely to report condom use at last sex than females (60.9% versus 48.3%) and so were students reporting opposite-sex only partners than those who reported same-sex or both-sex partners (57.0% versus 30.1%). Condom use at last sex also differed by sexual identity; prevalence was highest among heterosexual students (58.3%) and lowest among LGB students (35.7%).

Male students were less likely than female students to report they or their partners used a shot, patch, or ring or BCP to prevent pregnancy at last sex with an opposite-sex partner (19.6% versus 34.8%). Males were also more likely to report using a condom as the primary contraceptive method at last sex with an opposite-sex partner (49.8% versus 33.1%). Shot, patch, or ring or BCP and withdrawal or some other method during last sex with an opposite-sex partner differed by age. The use of a shot, patch, or ring or BCP was highest among older students (32.6% = ≥ 18 -year-olds vs 18.7% = ≤ 15 -year-olds) whereas withdrawal or some other method was highest among those ≤ 15 years old (15.6%) and 17-year-olds (10.6%) but lowest among 16-year-olds (6.1%) and those ≥ 18 years old (7.2%). Racial and ethnic differences in shot, patch, or ring or BCP and no contraceptive use at last sex with an opposite-sex partner were observed. For example, 32.2% of non-Hispanic White compared to 16.5% of non-Hispanic Black students reported using a shot, patch, or ring or BCP. No method used was highest among non-Hispanic Black students (23.7%); and lowest among non-Hispanic White students (11.1%). Condoms as the primary method to prevent pregnancy with an opposite-sex partner differed by sexual identity, with highest prevalence among heterosexual students (43.1%), followed by students who identified as another sexual identity or were questioning their sexual identity, (33.3%) and LGB students (29.2%).

Self-reported STI testing.

15.8% of currently sexually active students reported STI testing in the last year, and females were more likely to report testing than males (p -value = $\geq .001$; 21.9% versus 8.4%; Table 2). Students with same-sex or both-sex partners were more likely to report STI testing than students reporting opposite-sex only partners (25.9% versus 14.3%). Male students reporting same-sex or both-sex partners were more likely to report STI testing than male students reporting opposite-sex only partners (22.0% versus 7.5%).

Discussion

This study provides insight into adolescent SRH behaviors in early 2021 during the COVID-19 pandemic and associations with demographic variables, experiences of racism in school, and self-rated English proficiency. We found higher prevalence of current sexual activity among students who ever reported experiencing racism at school, but not among students belonging to racial and ethnic groups who experience the greatest levels of racism, such as Black and Hispanic/Latino students.¹⁴ Data from the 2021 national Youth Risk Behavior Survey (YRBS) also indicate no significant differences by race/ethnicity for current sexual activity, except among Asian students, who were least likely to be currently sexually active.²³ More research is needed to contextualize these findings relating to racism, race, and ethnicity; including examining associations between racism and sexual behaviors by race and ethnicity subgroups, which this study was not sufficiently powered to do. Investigating how racism and socioecological factors affect sexual behaviors is critical to understanding how risk factors may interplay with each other or further contribute to negative influences on SRH, which has been highlighted in other studies.²⁴ Our findings expand this evidence, contributing to other literature on the negative impacts of discrimination and experiences of racism on adolescent SRH outcomes.^{25,26} Further, English proficiency self-reported as “not well” was also linked with current sexual activity. English language proficiency may be capturing different underlying constructs, including experiences of discrimination, a potential barrier to access to health care, and a proxy for acculturation. In one 2005 study with 7th–12th grade Hispanic and White youth, less acculturated Hispanic youth (using English language use as a proxy for acculturation with primary language spoken) were less likely to report ever having sex than White youth.²⁷ However, the transportability of these findings to different time periods and contexts is unclear. Prior literature suggests that acculturation may be associated with a number of HIV-related sexual behaviors,²⁸ and also illustrates how language barriers may limit access to and delivery of health services and contribute to health-related disparities among populations.^{29,30} More research is needed to examine the role of language acquisition and proficiency, particularly among adolescents self-identifying as having low English proficiency, and impacts on sexual health behaviors.³¹ Furthermore, 1.2% of adolescents (n = 87) in our study reported both poor English proficiency and ever experiencing racism. Future studies should consider how these two experiences might relate to and interact with adolescent sexual behaviors.

While LGB students had similar prevalence of current sexual activity to heterosexual peers, they reported lower prevalence of condom use at last sex and use of condom as a primary method to prevent pregnancy with a member of the opposite sex. This might be due to differences of perceived pregnancy risk and motivation to use condoms, as well as the types of sexual behaviors considered when answering the survey question.^{32,33} Nonetheless, the finding is concerning considering persistent and disproportionate increases in STI infection rates³⁴ and HIV³⁵ among adolescents and young adults, and among those with sexual minority identities. Robust evidence describes effective interventions and strategies in school, clinic, and community settings to help reduce risk behaviors and experiences contributing to STI/HIV and unintended pregnancy among adolescents.^{36,37}

Less than one-fifth of currently sexually active students reported STI testing in the past 12 months, and we found that it was also higher among those who reported same-sex and both-sex sexual contacts. Taken together, these findings underscore the need for access to high-quality, inclusive SRH health care, counseling, and education.^{34,35} Differences in STI testing by sex are likely due to differing STI screening recommendations for males and females.^{20,21} Studies document practices such as incorporating testing into routine clinic visits, offering universal STI/HIV screening during health care visits, and improving provider skills for delivering youth-friendly and culturally responsive care as effective in increasing STI testing among youth.^{38,39}

Schools are critical venues that provide adolescent SRH services through referrals, direct service provision, and comprehensive education. School-based health clinics are shown to improve uptake of contraceptives among adolescents,⁴⁰ and STI screening events^{41, 42} and staff referrals to SRH providers⁴³ can also increase student's receipt of STI testing. School nurses, SBHC staff, and other health care providers are essential for improving students' access to youth-friendly, culturally-sensitive, and inclusive services.⁴⁴ For example, schools could provide resources in different languages. Moreover, given the overall low levels of condom use and STI testing, which may be exacerbated by disruptions to sexual health clinics caused by the COVID-19 pandemic,⁴⁵ schools and SBHCs become increasingly important in bridging the gap in health care, especially in under-resourced settings. Coupling school-based or school-linked SRH services with skills-based SRH education⁴⁶ to promote student's knowledge and skills for accessing and using SRH services may improve testing and contraceptive behaviors among currently sexually active adolescents.

Findings from this study are subject to limitations. General limitations for ABES are explained elsewhere;¹⁹ notably, ABES is a one-time cross-sectional survey. Causality or directionality of the findings cannot be determined and changes in behaviors or experiences are not assessed. Further, small sample sizes, led to some imprecise estimates and the suppression of cells, and prevented us from conducting further analyses. English proficiency was self-reported and obtained from a survey only offered in English and Spanish, which may result in a less reliable measure of English proficiency compared with a formal language assessment. Further, those who report low proficiency in English-based surveys may differ from those who were not able to take the survey in the first place. The item measuring primary contraceptive method used at last sex with an opposite-sex partner to prevent pregnancy was restricted to a single response choice, so we cannot determine if respondents (or their partners) used more than one method at last sex or contraceptive use among same-sex partners. Lastly, data were collected during the COVID-19 pandemic and are not directly comparable to other public health surveillance data (e.g., Youth Risk Behavior Survey), so we are unsure how the context of the pandemic may have influenced these associations, if at all.

This study investigated adolescent SRH behaviors during the COVID-19 pandemic and found differences by demographic characteristics. Pre-pandemic disparities in adolescent SRH behaviors and outcomes, in conjunction with the difference we observed in data from the pandemic period, suggest ongoing efforts to enhance access to and quality of SRH services and education are essential for all youth. Experiences of racism in school

and a potential indicator of discrimination, self-rated ability to speak English proficiently, were also associated with an increase in current sexual activity. Coupling such efforts with structural interventions that address racism and discrimination in school settings is needed. Future studies should explore the impacts of discriminatory experiences and language-related barriers to SRH care on adolescent STI/HIV and pregnancy outcomes, and consider effective and inclusive school, clinic, and community interventions.

Acknowledgment

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).

This project was supported in part by an appointment to the Research Participation Program at the Centers for Disease Control and Prevention administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and the Centers for Disease Control and Prevention.

References

1. Krause KH, Verlenden JV, Szucs LE, et al. Disruptions to school and home life among high school students during the COVID-19 pandemic—Adolescent Behaviors and Experiences Survey, United States, January–June 2021. *MMWR Suppl.* 2022;71(3):28–34. 10.15585/mmwr.su7103a5 [PubMed: 35358164]
2. Hoskote AR, Rolin D, Rew L, et al. Effects of COVID-19 on school nurse mental health intervention practices. *J Sch Nurs.* 2023 May 9:10598405231172758. 10.1177/10598405231172758
3. Hertz MF, Kilmer G, Verlenden J, et al. Adolescent mental health, connectedness, and mode of school instruction during COVID-19. *J Adolesc Health.* 2022;70(1):57–63. 10.1016/j.jadohealth.2021.10.021 [PubMed: 34930571]
4. Szucs LE, Pampati S, Li J, et al. Role of the COVID-19 pandemic on sexual behaviors and receipt of sexual and reproductive health services among U.S. high school students—Youth Risk Behavior Survey, United States, 2019–2021. *MMWR Suppl.* 2023;72(1):55–65. 10.15585/mmwr.su7201a7 [PubMed: 37104536]
5. Gallardo M, Zepeda A, Biely C, et al. School-based health center utilization during COVID-19 pandemic-related school closures. *J Sch Health.* 2022;92(11):1045–50. 10.1111/josh.13226 [PubMed: 35945893]
6. Sullivan E, Brey L, Soleimanpour S. School-based health center operations during the COVID-19 pandemic: a preliminary study. *Health Promot Pract.* 2021;22(5):616–21. 10.1177/15248399211016471 [PubMed: 34002646]
7. Pampati S, Liddon N, Mpofu JJ, et al. 193. Foregone health care among U.S. adolescents and children during the COVID-19 pandemic—COVID Experiences Surveys, Wave 2, March–May, 2021. *J Adolesc Health.* 2022;70(4):S101. 10.1016/j.jadohealth.2022.01.110
8. Hong C, Huh D, Schnall R, et al. Changes in high-risk sexual behavior, HIV and other STI testing, and PrEP use during the COVID-19 pandemic in a longitudinal cohort of adolescent men who have sex with men 13 to 18 years old in the United States. *AIDS Behav.* 2023;27(4):1133–9. 10.1007/s10461-022-03850-y [PubMed: 36156174]
9. Lindberg LD, Bell DL, Kantor LM. The sexual and reproductive health of adolescents and young adults during the COVID-19 pandemic. *Perspect Sex Reprod Health.* 2020;52(2):75–9. 10.1363/psrh.12151 [PubMed: 32537858]
10. Nelson KM, Gordon AR, John SA, et al. “Physical sex is over for now”: impact of COVID-19 on the well-being and sexual health of adolescent sexual minority males in the U.S. *J Adolesc Health.* 2020;67(6):756–62. 10.1016/j.jadohealth.2020.08.027 [PubMed: 33039273]
11. Stavridou A, Samiakou C, Kourti A, et al. Sexual activity in adolescents and young adults through COVID-19 pandemic. *Children.* 2021; 8(7):577. 10.3390/children8070577 [PubMed: 34356556]

12. Yarger J, Gutmann-Gonzalez A, Han S, et al. Young people's romantic relationships and sexual activity before and during the COVID-19 pandemic. *BMC Public Health*. 2021;21(1):1780. 10.1186/s12889-021-11818-1 [PubMed: 34598698]
13. Demissie Z, Ethier K, Williams K, et al. Racial-ethnic disparities in adolescent sexual behaviours: the cross-sectional Youth Risk Behavior Survey, 2009–19. *Sex Health*. 2022;19(5):456–63. 10.1071/SH22007 [PubMed: 35919962]
14. Mpofu JJ, Cooper AC, Ashley C, et al. Perceived racism and demographic, mental health, and behavioral characteristics among high school students during the COVID-19 pandemic—Adolescent Behaviors and Experiences Survey, United States, January–June 2021. *MMWR Suppl*. 2022;71(3):22–7. 10.15585/mmwr.su7103a4 [PubMed: 35358163]
15. Pellowski JA, Kalichman SC, Matthews KA, et al. A pandemic of the poor: social disadvantage and the U.S. HIV epidemic. *Am Psychol*. 2013;68(4):197–209. 10.1037/a0032694 [PubMed: 23688088]
16. Dorsey MS, King D, Howard-Howell T, et al. Culturally responsive sexual health interventions for Black adolescent females in the United States: a systematic review of the literature, 2010–2020. *Child Youth Serv Rev*. 2022;137(C):S0190740922001165. 10.1016/j.childyouth.2022.106480
17. Garcia CM, Duckett LJ. No te entiendo y tú no me entiendes: language barriers among immigrant Latino adolescents seeking health care. *J Cult Divers*. 2009;16(3):120–6. [PubMed: 19824291]
18. Yoo HC, Gee GC, Takeuchi D. Discrimination and health among Asian American immigrants: disentangling racial from language discrimination. *Soc Sci Med*. 2009;68(4):726–32. 10.1016/j.socscimed.2008.11.013 [PubMed: 19095340]
19. Rico A, Brener ND, Thornton J, et al. Overview and methodology of the Adolescent Behaviors and Experiences Survey—United States, January–June 2021. *MMWR Suppl*. 2022;71(3):1–7. 10.15585/mmwr.su7103a1
20. Committee On Adolescence Society For Adolescent Health Medicine. Screening for nonviral sexually transmitted infections in adolescents and young adults. *Pediatrics*. 2014;134(1):e302–11. 10.1542/peds.2014-1024 [PubMed: 24982099]
21. Centers for Disease Control and Prevention (CDC). Screening recommendations and considerations referenced in treatment guidelines and original sources. Atlanta, GA: US Department of Health and Human Services, 2022. Available at: <https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm>.
22. Lumley T. survey: Analysis of Complex Survey Samples. R package version 4.0; 2022.
23. Centers for Disease Control and Prevention (CDC). Youth Risk Behavior Survey Data Summary & Trends Report: 2011–2021. Atlanta, GA: CDC, 2023. Available at: https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS_Data-Summary-Trends_Report2023_508.pdf.
24. Prather C, Fuller TR, Marshall KJ, et al. The impact of racism on the sexual and reproductive health of African American women. *J Womens Health (Larchmt)*. 2016;25(7):664–71. 10.1089/jwh.2015.5637 [PubMed: 27227533]
25. Rosenthal L, Lobel M. Gendered racism and the sexual and reproductive health of Black and Latina women. *Ethn Health*. 2020;25(3):367–92. 10.1080/13557858.2018.1439896 [PubMed: 29447448]
26. Boutrin M-C, Williams DR. What racism has to do with it: understanding and reducing sexually transmitted diseases in youth of color. *Healthcare (Basel)*. 2021;9(6):673. 10.3390/healthcare9060673 [PubMed: 34199974]
27. Adam MB, McGuire JK, Walsh M, et al. Acculturation as a predictor of the onset of sexual intercourse among Hispanic and White teens. *Arch Pediatr Adolesc Med*. 2005;159(3):261–5. 10.1001/archpedi.159.3.261 [PubMed: 15753270]
28. Du H, Li X. Acculturation and HIV-related sexual behaviours among international migrants: a systematic review and meta-analysis. *Health Psychol Rev*. 2013;9(1):103–22. 10.1080/17437199.2013.840952 [PubMed: 25793493]
29. Flores G. Language barriers to health care in the United States. *N Engl J Med*. 2006;355(3):229–31. 10.1056/NEJMp058316 [PubMed: 16855260]

30. Jacobs E, Chen AH, Karliner LS, et al. The need for more research on language barriers in health care: a proposed research agenda. *Milbank Q.* 2006;84(1):111–33. 10.1111/j.1468-0009.2006.00440.x [PubMed: 16529570]
31. Edwards LM, Fehring RJ, Jarrett KM, et al. The influence of religiosity, gender, and language preference acculturation on sexual activity among Latino/a adolescents. *Hisp J Behav Sci.* 2008;30(4):447–62. 10.1177/0739986308322912
32. Mustanski B, DuBois LZ, Prescott TL, et al. A mixed-methods study of condom use and decision making among adolescent gay and bisexual males. *AIDS Behav.* 2014;18(10):1955–69. 10.1007/s10461-014-0810-3 [PubMed: 24906532]
33. Rosario M, Goodenow C, Ybarra M, et al. Reasons lesbian and bisexual adolescent girls have or might have sex with females or males: implications for discordance between sexual identity and behaviors and for prevention of pregnancy and STIs. *J Sex Res.* 2020;57(8):966–78. 10.1080/00224499.2020.1753638 [PubMed: 32425068]
34. Centers for Disease Control and Prevention (CDC). Sexually Transmitted Disease Surveillance 2021. Atlanta, GA: CDC, 2023. Available at: <https://www.cdc.gov/std/statistics/2021/default.htm>.
35. Centers for Disease Control and Prevention (CDC). HIV Surveillance Report, 2021. Atlanta, GA: CDC, 2023. Available at: <https://www.cdc.gov/hiv/library/reports/hiv-surveillance/vol-34/index.html>.
36. Pampati S, Johns MM, Szucs LE, et al. Sexual and gender minority youth and sexual health education: a systematic mapping review of the literature. *J Adolesc Health.* 2021;68(6):1040–52. 10.1016/j.jadohealth.2020.09.032 [PubMed: 33162290]
37. Jadwin-Cakmak L, Bauermeister JA, Cutler JM, et al. The health access initiative: a training and technical assistance program to improve health care for sexual and gender minority youth. *J Adolesc Health.* 2020;67(1):115–22. 10.1016/j.jadohealth.2020.01.013 [PubMed: 32268999]
38. Taylor MM, Frasure-Williams J, Burnett P, et al. Interventions to improve sexually transmitted disease screening in clinic-based settings. *Sex Transm Dis.* 2016;43(2S). 10.1097/OLQ.0000000000000294
39. Gannon-Loew KE, Holland-Hall C. A review of current guidelines and research on the management of sexually transmitted infections in adolescents and young adults. *Ther Adv Infect Dis.* 2020;7:2049936120960664. 10.1177/2049936120960664 [PubMed: 33598210]
40. Bersamin M, Paschall MJ, Fisher DA. Oregon school-based health centers and sexual and contraceptive behaviors among adolescents. *J Sch Nurs.* 2018;34(5):359–66. 10.1177/1059840517703161 [PubMed: 28403665]
41. Dunville R, Peterson A, Liddon N, et al. Sustained reduction in chlamydia infections following a school-based screening: Detroit, 2010–2015. *Am J Public Health.* 2018;108(2):231–3. 10.2105/AJPH.2017.304163 [PubMed: 29267064]
42. Braun RA, Provost JM. Bridging the gap: using school-based health services to improve chlamydia screening among young women. *Am J Public Health.* 2010;100(9):1624–9. 10.2105/AJPH.2009.186825 [PubMed: 20634446]
43. Rasberry CN, Liddon N, Adkins SH, et al. The importance of school staff referrals and follow-up in connecting high school students to HIV and STD testing. *J Sch Nurs.* 2017;33(2):143–53. 10.1177/1059840516658695 [PubMed: 27418443]
44. Holmes BW, Sheetz A, Allison M, et al. Role of the school nurse in providing school health services. *Pediatrics.* 2016;137(6):e20160852. 10.1542/peds.2016-0852 [PubMed: 27217476]
45. National Coalition of STD Directors. Sexual health clinics and our nation's COVID-19 response. Washington, DC: National Coalition of STD Directors, 2020.
46. Young E, Demissie Z, Brener ND, et al. Trends in teaching sexual and reproductive health skills in US secondary schools in 35 states, 2008 to 2018. *J Sch Health.* 2022;92(7):711–9. 10.1111/josh.13179 [PubMed: 35322428]

Table 1.

SEXUAL AND REPRODUCTIVE HEALTH BEHAVIORS OVERALL AND BY DEMOGRAPHICS, EXPERIENCES OF RACISM IN SCHOOL, AND ENGLISH PROFICIENCY—ADOLESCENT BEHAVIORS AND EXPERIENCES SURVEY, UNITED STATES, JANUARY–JUNE 2021

Demographic or experience	Any sexual partners in the last 3 months ^a % [95% CI]	Use of condoms during last sex (among currently sexually active ^a students) % [95% CI]	Primary contraceptive method used at last intercourse with opposite sex partner (to prevent pregnancy among currently sexually active students) ^{a,b}				
			Use of IUD or implant % [95% CI]	Shot, patch, or birth control ring or BCpC % [95% CI]	Condoms % [95% CI]	Withdrawal or some other method % [95% CI]	No contraceptive used % [95% CI]
Overall	18.8% [16.6, 21.0]	54.0% [50.5, 57.4]	5.8% [4.4, 7.7]	27.8% [24.4, 31.5]	40.8% [37.1, 44.8]	9.3% [7.1, 12.2]	13.4% [11.2, 15.8]
Sex							
Male	18.0% [15.5, 20.9]	60.9% [56.0, 65.5]	4.8% [3.1, 7.2]	19.6% [15.8, 24.0]	49.8% [44.8, 54.9]	9.3% [6.8, 12.5]	12.6% [9.2, 16.9]
Female	19.5% [17.2, 22.1]	48.3% [43.4, 53.1]	6.8% [4.5, 10.0]	34.8% [29.8, 40.2]	33.1% [28.7, 37.8]	9.4% [6.7, 13.1]	14.1% [10.8, 18.2]
Chi-Squared p-value	.17	<.001	.24	<.001	<.001	.94	.61
Age, years							
≤15	7.7% [6.1, 9.6]	50.3% [41.7, 59.0]	2.6% [1.0, 6.6]	18.7% [12.4, 27.2]	42.5% [32.4, 53.4]	15.6% [9.7, 24.3]	15.7% [9.9, 23.9]
16	17.2% [14.2, 20.8]	58.1% [51.2, 64.8]	6.5% [3.6, 11.2]	21.1% [16.8, 26.3]	44.2% [38.2, 50.4]	6.1% [3.0, 11.8]	18.0% [13.8, 23.1]
17	28.7% [24.9, 32.8]	52.0% [45.6, 58.3]	6.9% [4.5, 10.3]	31.7% [25.9, 38.0]	37.4% [31.6, 43.6]	10.6% [6.3, 17.2]	12.0% [8.1, 17.2]
≥18	32.9% [29.4, 36.6]	55.2% [49.1, 61.1]	5.5% [3.3, 9.1]	32.6% [25.3, 40.8]	42.2% [35.5, 49.2]	7.2% [4.3, 11.9]	10.1% [6.7, 15.1]
Chi-Squared p-value	<.001	.09	.68	.034	.41	.001	.32
Race and ethnicity ^d							
Non-Hispanic White	20.9% [18.4, 23.6]	55.0% [50.8, 59.0]	6.4% [4.4, 9.2]	32.2% [26.9, 37.9]	39.7% [35.0, 44.6]	8.4% [5.2, 13.3]	11.1% [8.3, 14.6]
Non-Hispanic Black	18.3% [14.9, 22.3]	54.3% [44.9, 63.4]	3.4% [1.0, 10.3]	16.5% [10.9, 24.3]	42.2% [33.9, 51.0]	7.6% [3.5, 15.7]	23.7% [18.3, 30.1]
Hispanic	14.7% [11.9, 18.0]	53.3% [45.6, 60.9]	6.7% [3.7, 11.7]	19.5% [14.2, 26.2]	43.8% [35.5, 52.4]	13.0% [7.4, 21.8]	14.1% [9.0, 21.5]
American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, Non-Hispanic multiracial	19.2% [14.1, 25.5]	49.4% [39.4, 59.5]	4.1% [2.0, 8.2]	30.7% [21.4, 42.0]	40.2% [29.3, 52.2]	8.9% [3.2, 22.6]	14.4% [8.4, 23.5]
Chi-Squared p-value	<.001	.83	.92	.001	.82	.12	.008
Sexual identity							
Heterosexual (Straight)	19.5% [17.1, 22.2]	58.3% [54.6, 61.9]	5.8% [4.2, 7.9]	27.7% [24.0, 31.8]	43.1% [38.8, 47.6]	8.6% [5.9, 12.3]	12.8% [10.7, 15.3]
Lesbian, Gay, or Bisexual	19.7% [15.5, 24.7]	35.7% [26.6, 46.0]	7.8% [3.8, 15.5]	27.4% [19.8, 36.4]	29.2% [21.6, 38.0]	13.7% [8.0, 22.4]	18.8% [11.0, 30.3]
Other or Questioning	12.4% [9.3, 16.2]	41.4% [31.3, 52.4]	5.0% [1.6, 14.9]	34.6% [22.8, 48.7]	33.3% [20.9, 48.5]	13.4% [5.3, 29.8]	9.4% [5.1, 16.6]
Chi-Squared p-value	.008	<.001	.66	.54	.01	.28	.15

Demographic or experience	Any sexual partners in the last 3 months ^a % [95% CI]	Use of condoms (among currently sexually active ^a students) % [95% CI]	Primary contraceptive method used at last intercourse with opposite sex partner (to prevent pregnancy among currently sexually active students) ^{a,b}				
			Use of IUD or implant % [95% CI]	Shot, patch, or birth control ring or BCP ^c % [95% CI]	Condoms % [95% CI]	Withdrawal or some other method % [95% CI]	No contraceptive used % [95% CI]
Sex of sexual contact							
Same sex or both sex	34.1% [28.4, 40.3]	30.1% [20.5, 41.8]	6.7% [3.1, 13.7]	23.8% [12.6, 40.2]	32.4% [19.7, 48.4]	12.9% [7.0, 22.7]	17.4% [10.3, 28.0]
Opposite sex only	48.2% [44.9, 51.6]	57.0% [53.9, 60.2]	5.8% [4.3, 7.8]	28.3% [24.8, 32.1]	41.4% [37.6, 45.2]	9.0% [6.5, 12.4]	13.0% [10.8, 15.6]
Chi-Squared p-value	<.001	<.001	.71	.53	.24	.33	.29
Experienced racism at school							
Never	17.3% [14.9, 20.0]	54.7% [50.9, 58.3]	6.5% [4.2, 10.0]	28.8% [24.3, 33.6]	41.3% [36.4, 46.4]	8.8% [5.5, 13.6]	12.7% [9.9, 16.0]
Ever	21.5% [18.7, 24.6]	53.0% [46.6, 59.3]	4.8% [3.1, 7.4]	26.4% [21.4, 32.0]	40.0% [34.0, 46.4]	10.2% [7.3, 14.0]	14.5% [10.7, 19.2]
Chi-Squared p-value	.004	.64	.37	.48	.75	.61	.50
English Proficiency							
Speaks English well	18.3% [16.1, 20.7]	54.2% [50.5, 57.9]	5.5% [4.1, 7.4]	28.9% [25.2, 32.8]	41.7% [37.5, 46.0]	9.2% [6.6, 12.5]	12.4% [10.6, 14.5]
Does not speak English well	31.8% [21.4, 44.5]	34.6% [13.8, 63.4]	9.0% [1.7, 35.9]	28.5% [11.4, 55.4]	17.4% [4.3, 49.5]	6.2% [1.7, 20.7]	23.1% [7.0, 54.6]
Chi-Squared p-value	.005	.12	.50	.97	.054	.52	.20

Notes

^aCurrently sexually active is defined as ≥ 1 sexual partner during the 3 months prior to the survey.

^bWithin primary contraceptive methods, responses for “unsure” (N = 34) are suppressed.

^cBirth control pills (BCP). Does not include emergency contraception such as Plan B or the “morning after” pill.

^dWithin the race and ethnicity category, “Hispanic” includes “Hispanic/Latino” and “Hispanic Multiracial.”

Table 2.

SEX-STRATIFIED SELF-REPORTED STI TESTING AMONG CURRENTLY SEXUALLY ACTIVE STUDENTS OVERALL AND BY DEMOGRAPHICS, EXPERIENCES OF RACISM, AND ENGLISH PROFICIENCY—ADOLESCENT BEHAVIORS AND EXPERIENCES SURVEY, UNITED STATES, JANUARY–JUNE 2021

Demographics or experience	Self-reported STI Testing ^a among currently sexually active students ^b		
	Total	Male	Female
Overall	15.8% [13.2, 18.9]	8.4% [6.0, 11.6]	21.9% [17.3, 27.3]
Age, years			
≤15	12.8% [6.5, 23.9]	10.9% [5.0, 22.2]	14.3% [6.2, 29.7]
16	12.9% [8.8, 18.4]	6.5% [3.5, 11.8]	19.2% [12.1, 29.1]
17	17.5% [12.9, 23.2]	6.6% [3.2, 13.2]	24.6% [18.0, 32.7]
≥18	17.8% [12.2, 25.2]	10.9% [5.5, 20.2]	24.8% [16.2, 36.0]
Chi-Squared p-value	0.69	0.74	0.51
Race and ethnicity ^c			
Non-Hispanic White	16.3% [13.0, 20.2]	8.4% [5.6, 12.5]	22.8% [16.4, 30.9]
Non-Hispanic Black	23.7% [14.4, 36.6]	14.9% [7.2, 28.5]	32.2% [16.9, 52.5]
Hispanic	11.1% [7.1, 17.2]	8.7% [3.6, 19.5]	12.9% [7.5, 21.3]
American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, Non-Hispanic Multiracial	15.0% [7.6, 27.3]	1.5% [0.2, 9.4]	25.1% [12.7, 43.5]
Chi-squared p-value	.12	.72	.08
Sexual identity			
Heterosexual (Straight)	14.0% [11.5, 17.0]	7.6% [5.3, 11.0]	20.9% [16.1, 26.6]
Lesbian, Gay, or Bisexual	23.6% [14.9, 35.2]	—	24.8% [15.8, 36.7]
Other or Questioning	21.0% [10.2, 38.3]	—	22.5% [10.1, 42.8]
Chi-squared p-value	.06	.24	.77
Sex of sexual contact			
Same sex or both sex	25.9% [16.5, 38.2]	22.0% [10.2, 41.2]	27.3% [16.8, 41.2]
Opposite sex only	14.3% [11.8, 17.4]	7.5% [5.1, 10.9]	20.7% [15.9, 26.5]
Chi-squared p-value	.012 [*]	.006 ^{**}	.27
Experience of racism in school			
Never	15.8% [11.6, 21.3]	6.9% [4.5, 10.4]	22.3% [15.6, 30.9]
Ever	15.8% [11.6, 21.2]	10.3% [6.1, 16.8]	21.2% [15.1, 29.0]
Chi-squared p-value	1.00	.23	.85
English proficiency			
Speaks English well	16.0% [13.3, 19.2]	8.6% [6.2, 11.8]	21.9% [17.1, 27.5]
Does not speak English well	11.1% [3.3, 31.1]	—	—
Chi-squared p-value	.48	.39	.78

Notes

^aSTI testing in the last 12 months which does not include HIV testing.

^bCurrently sexually active is defined as having ≥ 1 sexual partner during the 3 months prior to the survey.

^cWithin the race and ethnicity category, “Hispanic” includes “Hispanic/Latino” and “Hispanic Multiracial”.

STI = Sexually transmitted infection; — = Suppressed cell

*
 $p \leq .05$;

**
 $p \leq .01$;

 $p \leq .001$

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript